

US EPA ARCHIVE DOCUMENT



Smart Grid in California

California Public Utilities Commission

December 17, 2008





California Committed to Implement Smart Grid

- **Statewide advanced metering deployment launched in 2006**
- **California regulatory agencies are launching key Smart Grid initiatives**
 - California Public Utilities Commission (CPUC)
 - California Energy Commission (CEC)
- **Three large Investor-Owned Utilities have significant Smart Grid initiatives in progress**
- **Smart Grid legislation currently pending in California legislature**





Advanced Metering Deployment Progressing in California

- In 2003, CPUC adopted a policy that all electric customers should have advanced meters
- Advanced meters in place now for customers with greater than 200 kilowatt (kW) maximum demand
- System-wide advanced metering deployments approved for Pacific Gas & Electric and San Diego Gas & Electric and Southern California Edison.
- Concurrent tariff changes to offer time-of-use and dynamic pricing





California Advanced Metering Initiative Summary

	Pacific Gas & Electric	San Diego Gas & Electric	Southern California Edison
# of Electric Meters	5.1M	1.4M	5.3M
# of Gas Meters	4.2M	0.9M	Gas Utility may connect to AMI
Costs Approved	\$1.7B in July 2006	\$0.6B in April 2007	\$1.7B
Costs Pending Approval	\$0.6B to upgrade	-	
Deployment Schedule	2006 to 2012	2008 to 2011	2009 to 2012

➤Note: The table pertains to meters for utility customers with maximum load less than 200 kW. Customers with maximum load greater than 200 kW already have advanced meters.





Advanced Meter: Minimum Functionality

Enable dynamic pricing & feedback to Utility and Customer

- Track hourly or more frequent usage data: measure, store, transmit
- Implement price responsive tariffs:
 - Time of use, critical peak pricing, real-time pricing
- Provide two-way communication with utility
- Provide customers access to usage data and dynamic prices
 - Understand usage patterns & their relationship to energy costs

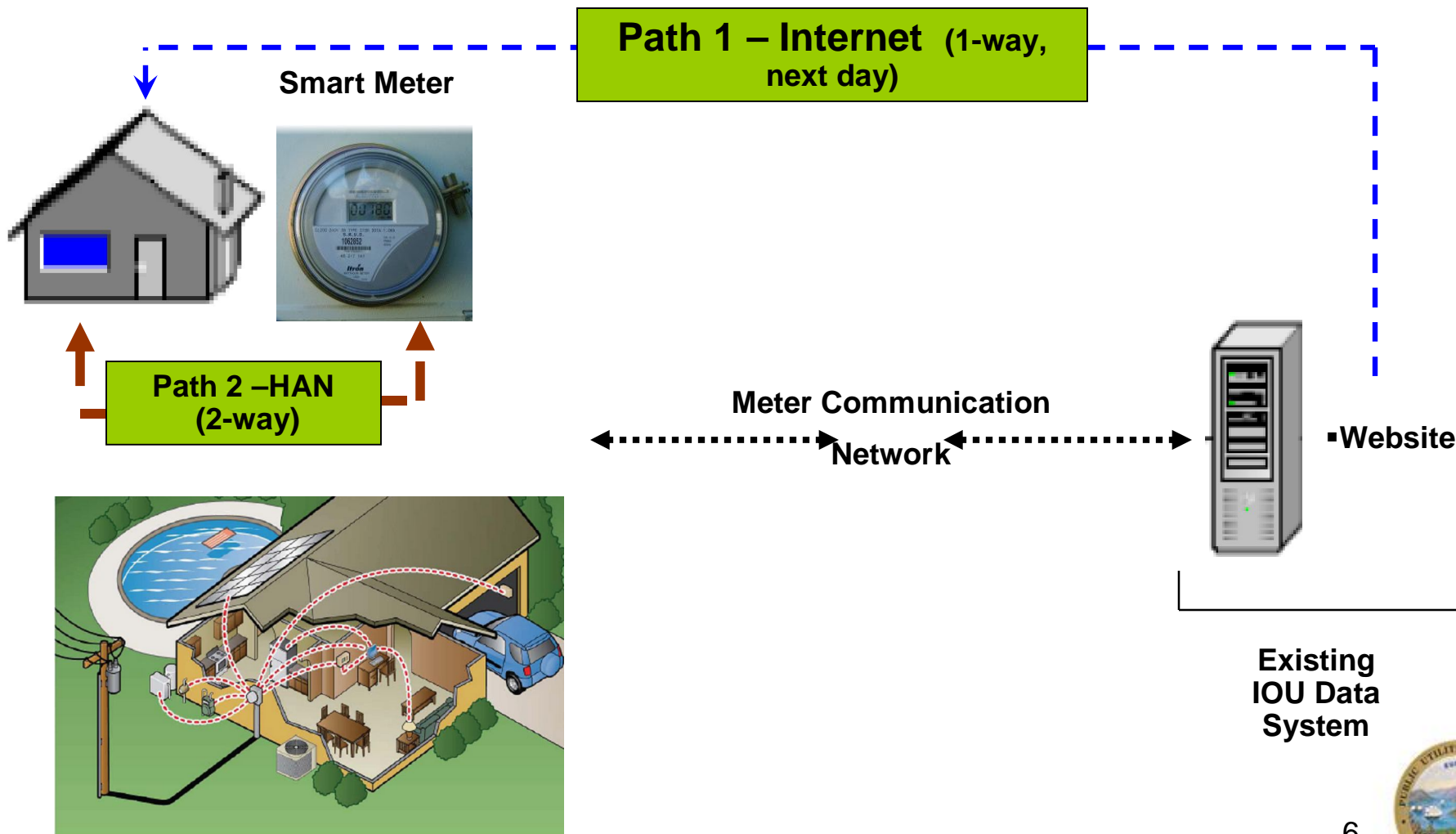
Increase system efficiency

- Enhance system operating efficiency
 - Auto meter reading, outage management, improved forecasting, theft reduction
- Interface with Direct Load Control communication technology
- Support billing, customer support, outage management applications





Two Methods of Providing Customer Feedback





California Regulatory Agencies Pursuing Smart Grid

- **California Energy Commission (CEC)**
 - Held two public workshops on Smart Grid
 - Public Interest Energy Research group to fund development of 2020 Smart Grid goals
- **California Public Utilities Commission (CPUC)**
 - Held Smart Grid roundtable
 - Plan to open Smart Grid Rulemaking in December 2008





CPUC Smart Grid Rulemaking Expected in Late 2008

- **Comply with federal Energy Independent Security Act of 2007 and potential new state law**
- **Develop state-wide Smart Grid vision and consistent framework**
- **Process expected to last two years**
 - Initiate public workshops
 - Explore role of standards
 - Consider other policy issues





Smart Grid in California

- Digital
- Advanced Communications
- Predictive & Self-Healing
- Sensors & Automation
- Integrated (Distrib. Gen, Storage, PHEV)
- Smart Meters
- Interactive, Real-time info
- Standardized & Evolving

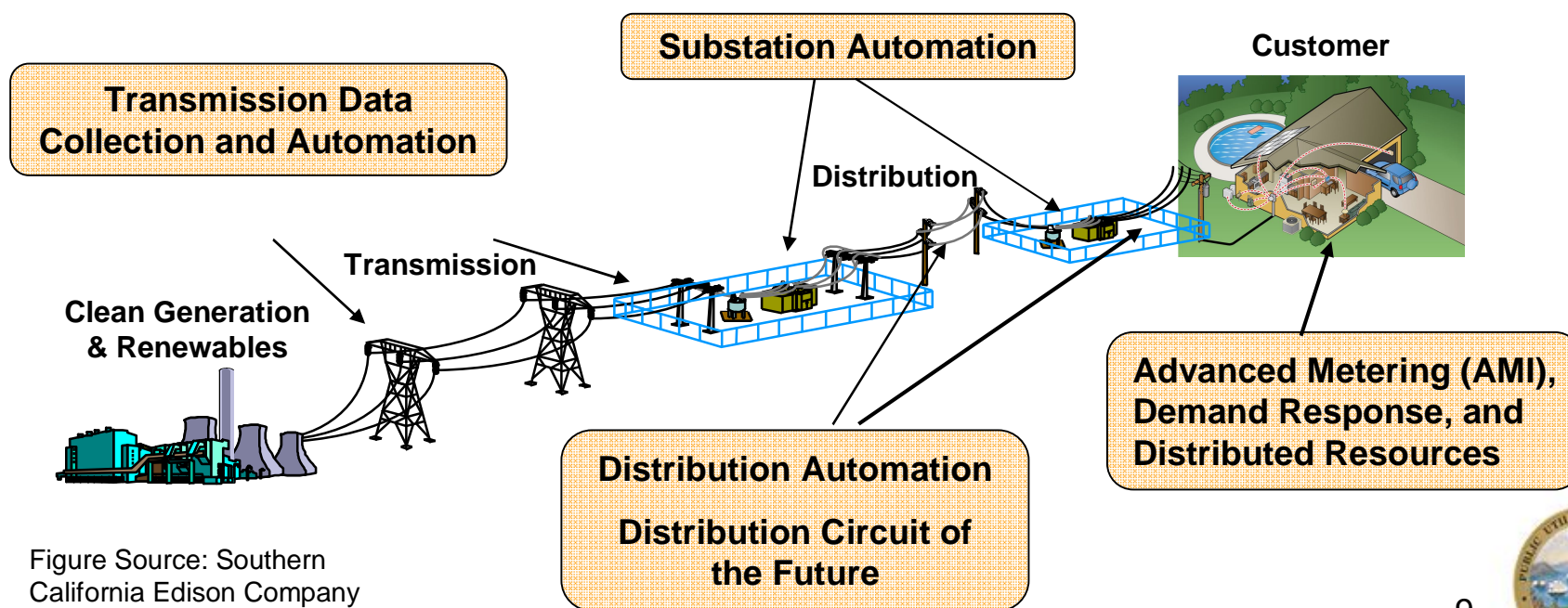


Figure Source: Southern California Edison Company





California IOU Smart Grid Investments in Progress

- **Three largest investor-owned utilities have significant smart grid initiatives already in progress. Some examples:**
 - Advanced metering infrastructure
 - Substation and Distribution automation
 - Grid failure prevention, detection, repair
 - Enable integration of Distributed Energy Resources
 - Operational efficiencies
- **No specific Smart Grid related regulatory framework is guiding these deployments to-date**





Pending California Legislation: Senate Bill 17

Key provisions:

- Lays out goals for a state-level Smart Grid initiative
- References same “characteristics” of Smart Grid identified in federal Energy Security Independence Act of 2007
- **By July 2010, the bill would require the CPUC to...**
 - “Adopt” standards & protocols developed by industry and government standards groups, and
 - “Determine requirements” for Smart Grid deployment plans
 - Consult with CEC and California Independent System Operator in performing above tasks
- **One year later, utilities would be required to submit their Smart Grid deployment plans for approval**





Links to Related Documents

- **Pacific Gas & Electric Advanced Metering Decision (July 2006)**
http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/58362.htm
- **San Diego Gas & Electric Advanced Metering Decision (April 2007)**
http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/66766.htm
- **California Energy Commission Smart Grid Workshop**
http://www.energy.ca.gov/load_management/documents/
(see section dated April 29, 2008)

